



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,825	02/25/2004	Belgacem Haba	TESSERA 3.0-337 II	5077
38091	7590	01/14/2008	EXAMINER	
TESSERA LERNER DAVID et al. 600 SOUTH AVENUE WEST WESTFIELD, NJ 07090			FULK, STEVEN J	
			ART UNIT	PAPER NUMBER
			2891	
			MAIL DATE	DELIVERY MODE
			01/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/786,825

**Applicant(s)**

HABA ET AL.

**Examiner**

Steven J. Fulk

**Art Unit**

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 22-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/31/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7, 8, 10, 12-18, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Karpman '481.

Regarding claim 1, Karpman discloses a method of making mountable MEMS devices comprising assembling a portion of a wafer (fig. 7, 10) having a main surface and a multiplicity of spaced-apart caps (fig. 12, 20) projecting upwardly from the main surface and having channels between the caps (fig. 8, channel regions with contacts 14) with a terminal bearing element incorporating an array of terminals so as to mount terminals simultaneously on a plurality of the caps (fig. 8, terminals 30 simultaneously formed on caps); and electrically connecting the terminals by bonding leads extending to contacts on the wafer disposed in the channels (fig. 13, bonding lead 40).

Regarding claim 2, the reference further discloses the terminal-bearing element (fig. 8, 30) to include the lead (fig. 13, 40), and bonding the leads to the contacts (14).

Regarding claim 3, the reference further discloses the leads to be aligned with the channels (lead 40 must be aligned with channel/contact 14 in order to electrically connect to contact).

Regarding claim 4, the reference further discloses the leads (fig. 13, 40) to extend at a level above the contacts (14), and the leads bend down to engage the contact.

Regarding claim 5, the reference further discloses the leads to be elongated and performing the assembly step so that at least some of the leads are aligned with channels extending co-directionally with such leads (elongated lead 40 must be aligned with channel/contact 14 in order to electrically connect to contact).

Regarding claim 7, the reference further discloses severing the wafer in the channels (fig. 16) to form a plurality of units, each unit containing a cap, a terminal, and a contact.

Regarding claim 8, the reference further discloses the terminal-bearing element to include a dielectric layer, the terminals and the leads being supported by the dielectric element prior to the assembling step (fig. 11, dielectric layer 34 supports terminal 32 and lead 40).

Regarding claim 10, the reference further discloses the terminal-bearing element has at least some of the terminals electrically connected to one another prior to the assembling step, the severing step being performed so as to sever at least some connections between the terminals (fig. 12, terminals are separated from each other).

Regarding claim 12, the reference further discloses the wafer to include a plurality of MEMS devices (fig. 7, 12), and the caps to cover the MEMS devices.

Regarding claims 13 and 21, Karpman discloses a method of making electronic devices comprising assembling a portion of a wafer having a main surface (fig. 7, 10), structure defining an upper surface above the main surface, depressions/channels extending into the wafer from the upper surface defined by spaced-apart caps (fig. 12, 20), and contacts in the depressions (fig. 8, channel regions with contacts 14); and a terminal bearing element incorporating an array of terminals so as to mount a plurality of terminals simultaneously (fig. 8, terminals 30 simultaneously formed on caps); and electrically connecting the terminals by bonding leads extending to contacts on the wafer disposed in the depressions (fig. 13, bonding lead 40).

Regarding claim 14, the reference further discloses the terminal-bearing element (fig. 8, 30) to include the lead (fig. 13, 40), and bonding the leads to the contacts (14).

Regarding claim 15, the reference further discloses the leads to be aligned with the channels (lead 40 must be aligned with channel/contact 14 in order to electrically connect to contact).

Regarding claim 16, the reference further discloses the leads (fig. 13, 40) to extend at a level above the contacts (14), and the leads bend down to engage the contact.

Regarding claim 17, the reference further discloses severing the wafer in the channels (fig. 16) to form a plurality of units.

Regarding claim 18, the reference further discloses the terminal-bearing element to include a dielectric layer, the terminals and the leads being supported by the dielectric element prior to the assembling step (fig. 11, dielectric layer 34 supports terminal 32 and lead 40).

Regarding claim 20, the reference further discloses the terminal-bearing element has at least some of the terminals electrically connected to one another prior to the assembling step, the severing step being performed so as to sever at least some connections between the terminals (fig. 12, terminals are separated from each other).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karpman '481.

a. Regarding claim 6, Karpman discloses all of the elements of the claim(s) as set forth in paragraph 2 above, but the reference does not explicitly disclose the channels to include wide channels and narrow channels. However, figure 6 of Karpman shows cap-sealing layer 22 would form channels to sides of the device 12 having contacts 14, as well as channels above and below device 12 that do not have contacts. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to form the channels without contacts as narrow as possible to reduce the area consumed by a device, thus allowing more devices per wafer to be manufactured.

b. Regarding claim 11, Karpman discloses all of the elements of the claim(s) as set forth in paragraph 2 above, but the reference does not explicitly disclose the MEMS device to be an acoustically active device.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form an acoustically active MEMS device because such devices were a well-known species of MEMS devices.

5. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karpman '481 in view of Haba et al. '910.

Karpman discloses all of the elements of the claims as set forth in paragraph 2 above, but the reference does not explicitly teach using a lead frame. Haba et al. teaches a method of making electrical connections in microelectrical devices using breakable lead frame sections, wherein the lead frame terminal is mounted on top of the device (fig. 12; col. 11, lines 17-20); the lead frame is supported by a dielectric layer (fig. 12, 112); the terminals (118, 130) are separated from each other by severing the leads (128) and bending the leads to engage with the contacts in the channels (172).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lead frame system of Haba et al. to electrically connect the MEMS device of Karpman. One would have been motivated to do this

because using a lead-frame to electrically connect devices to peripheral circuitry was well known to be a faster process than using individual wire bonds, thus improving the manufacturing process and reducing the cost of manufacturing.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1- 21 have been considered but are not found persuasive. Applicant argues that Karpman teaches mounting an array of terminals on a cap first, then separating them into spaced apart caps. The Examiner agrees with this assessment of Karpman, however claims 1 and 13 do not require the assembly to be sequential, and therefore the teaching of Karpman anticipates claims 1 and 13. Specifically, Karpman teaches assembling a terminal bearing element incorporating an array of terminals so as to mount terminals simultaneously on a plurality of caps (fig. 8, terminals 30 simultaneously formed on caps, each region over seal 22 considered a cap) and a portion of a wafer (fig. 7, 10) having a main surface and a multiplicity of spaced-apart caps (fig. 12, 20) projecting upwardly from the main surface and having channels between the caps (fig. 8, channel regions with contacts 14). The channels shown in fig. 12 correspond to the depressions required by claim 13, and the leads aligned with the channels as required by claim 3 are shown in fig. 13 as leads 40 in the channels between the caps.



***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Fulk whose telephone number is (571) 272-8323. The examiner can normally be reached on Monday through Friday, 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/786,825  
Art Unit: 2891

Page 9

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*SJF*

Steven J. Fulk  
Patent Examiner  
Art Unit 2891

January 10, 2008



**B. WILLIAM BAUMEISTER**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800